

MOLECULAR BIOLOGY OF THE CELL

Study programme: MIMV Curricular Year: 1st Semester: 2nd Compulsory ECTS: 5.0

Lecturers: José A. Mestre Prates (CCP e R), Mário A. Soares Pinho, Victor Diogo Alves, Pedro Bule Gomes

1. Contact hours:

Lectures – 28, Practicals – 28, Total – 56

2. Objectives:

Learning of the general concepts and fundamentals of molecular and cellular biology to the understanding at the molecular level of biological phenomena occurring in Veterinary Sciences. Furthermore, attending to the strong experimental basis of this scientific field, the application of the scientific methodology by the students is also a major goal of the discipline.

3. Programme:

3.1. Theoretical: Cells foundations. Structure of nucleotides and nucleic acids. Recombinant DNA technology. Genomics and proteomics. Genes and chromosomes. DNA metabolism. RNA metabolism. Protein metabolism. Regulation of gene expression. Signal transduction. Vesicular traffic. Cell-cycle and cell-growth control.

3.2. Practical: Histological techniques. Techniques of nucleic acid analysis. Recombinant DNA technology. Searching information on biological databases.

4. Bibliography:

1. PRATES, J. A. M. et al. (2024) - Texto de Apoio das Aulas Teóricas da Disciplina de Biologia Molecular da Célula. Edição de 2023/24 & CD-ROM (Biologia Molecular da Célula, FMV-UTL). Lisboa : Faculdade de Medicina Veterinária da Universidade Técnica de Lisboa. 155 p. Material fornecido aos Discentes da Disciplina.
2. PRATES, J. A. M. et al. (2024) - Sumários e Protocolos Técnicos das Aulas Práticas da Disciplina de Biologia Molecular da Célula. Edição de 2023/24 & CD-ROM (Biologia Molecular da Célula, FMV-UTL). Lisboa : Faculdade de Medicina Veterinária da Universidade Técnica de Lisboa. 35 p. Material fornecido aos Discentes da Disciplina.
3. LODISH, H. et al. (2016) - Molecular Cell Biology. 8th edition & CD-ROM. New York : W. H. Freeman and Company. ISBN 0716743663.
4. ALBERTS, B., JOHNSON, A., LEWIS, J., RAFF, M., ROBERTS, K. e WALTER, P. (2014) - Molecular Biology of the Cell. 6th edition. New York : Garland Science. ISBN 0815340729.
5. NELSON, D. L. e COX, M. M. (2021) - Lehninger Principles of Biochemistry. 8th edition & CD-ROM (Understand! Biochemistry). New York : W. H. Freeman and Company. ISBN 0716743396.
6. OSGOOD, M. e OCORR, K. (2021) - The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry: Study Guide and Solutions Manual. 6th edition. New York : W. H. Freeman and Company. ISBN 0716759551.

5. Assessment:

Theoretical: written examination (60% of final classification). Practical: written examination (20%) and final report (20%).